



Department of Community Development

801 - 228th Avenue SE • Sammamish, WA 98075 • Phone: 425.295.0500 • Fax: 425.295.0600 • web: www.ci.sammamish.wa.us

To: Planning Commission

March 30, 2012

From: Evan Maxim, Senior Planner

RE: Staff Recommendation Memo #1:

Critical Aquifer Recharge Areas, Seismic Hazard, and Frequently Flooded Areas (ECA Regulations)

Background:

This memorandum is intended to provide the Planning Commission with a staff recommendation for amendments to the existing Environmentally Critical Areas regulations by A) clearly identifying recommended changes to the above environmentally critical area features (e.g. CARAs, Seismic Hazards, and Frequently Flooded Areas), and B) providing the basis for the recommendation.

Summary: Please note that the numbering within this document corresponds to the numbering assigned to the proposed amendments contained in the attached draft code amendments.

Regulations. The staff recommends the following amendments to the Environmentally Critical Areas Regulations:

- 1-1. Modify the Critical Aquifer Recharge Area (CARA) regulations to further regulate land use activities that use chemicals that have a potential to degrade groundwater and surface water quality when used inappropriately or in excess.
- 1-2. Limit the use of geothermal wells within all CARAs. Require a notice on title for properties using geothermal wells.
- 1-3. Prohibit groundwater injection wells within Class 1 and 2 CARAs.
- 1-4. Update the Seismic Hazard Area definition to specifically reference the terminology used within the updated Seismic Hazard map.

Maps. The staff recommends the adoption of the following Environmentally Critical Area map updates:

- 1-5. Update the Critical Aquifer Recharge Area map (based upon information from the water and sewer districts in the city), and monitor United States Geological Survey (USGS) mapping of the Sammamish region.
- 1-6. Adopt a new Seismic Hazard Area map based on the 2004 DNR Liquefaction Susceptibility Map.

Basis for Recommendations: The staff has based the recommendations upon the following:

- 1-1. Best Available Science report recommendation (Critical Aquifer Recharge Area BAS Report). The city currently limits land uses within Class 1, 2, and 3 CARA to limit potential groundwater contamination and related risks to municipal water supply wells. The city's consultant has provided a best management practice recommendation that the city further explicitly limit land uses that are likely to use high quantities of pesticides, fertilizers, or other chemicals that may contaminate the aquifer.
- 1-2. Northeast Sammamish Sewer & Water District (NESSWD) and Sammamish Plateau Water & Sewer District (SPWSD) comment letters (#56 and #57). Both districts are concerned that geothermal wells /

heat exchanges within the mapped Critical Aquifer Recharge Areas will contaminate the aquifer for municipal water supply wells. Possible contamination could occur either through:

- a. Geothermal well / heat exchange failures (i.e. leaks) resulting from poor maintenance; or
- b. Ground water contamination from surface water contamination down the edge of the well.

- 1-3. Sammamish Plateau Water & Sewer District (SPWSD) comment letter (#57). The SPWSD is interested in ensuring that the ground water injection systems do not degrade groundwater near their municipal water supply wellheads, and has suggested that a ban within mapped Class 1 and 2 CARAs will reduce the chances of such contamination;
- 1-4. Best Available Science report recommendation (Seismic Hazard BAS Report). The consultant has recommended that the city update the Sammamish Seismic Hazard area map to reflect updated data from the 2004 DNR Liquefaction Susceptibility Map. The update to the definition more specifically references the terminology used within the updated Seismic Hazard map.
- 1-5. Best Available Science report recommendation (Critical Aquifer Recharge Area BAS Report). The consultant has recommended that the city update the CARA maps as new information becomes available; specifically identifying anticipated map updates by the USGS in the next 18 months. Both SPWSD and NESSWD maintain information related to the CARA wellhead protection areas and have provided the city with updated data.
- 1-6. Best Available Science report recommendation (Seismic Hazard BAS Report). The consultant recommends updating the Seismic Hazard map because a more recent map is available that represents new and improved information. The more recent map's improvements over the older map the City has been utilizing are as follows: 1) it includes more detailed geologic mapping of ground conditions at a 1:24,000 scale as opposed to the current map's 1:100,000 scale; 2) it includes data from a larger number of geotechnical borings; 3) it reflects quantitative engineering analysis to calculate liquefaction susceptibility; and 4) it reflects calculations validated by reports of liquefaction during major earthquakes in the Puget Sound region.